

# Amanda Charbonneau

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## Research and Professional Experience

- 2011 – present      **Ph.D student**, Genetics and EEBC, MSU  
 Research Topic: *Determining the loci that underlie the differences between weedy R. raphanistrum and its non-weedy relatives*
- Summer 2014 & 2015      **Course Coordinator**, [Next-Gen Sequence Analysis Workshop](#)  
*Logistics and troubleshooting for two-week intensive learning course, in addition to teaching (see above).*
- 2007 – 2011      **Research Technologist**, Biochemistry and Molecular Biology, MSU  
*Genomic screening of secondary metabolites in tomato trichomes from wild and cultivated species.*  
*Genetic and biochemical characterization of genes causing qualitative differences between wild and cultivated varieties of tomato.*
- 2005 – 2007      **Research Technician**, Dow Chemical Company, New Products R&D  
*Creation and testing of metal matrix composites materials for use as body armor and vehicle components.*
- 2005 – 2005      **Researchers Aide**, Landscape Entomology, MSU  
*Independent testing of pesticides*  
*Pest consultations for privately owned land management agencies.*
- 2001 – 2005      **BA Biochemistry & Criminal Justice**, Olivet College, Olivet, Michigan, 49076

## Teaching & Outreach

- 2017 - present      **Maintainer**, Data Carpentry Genomics Lessons  
*Remote and Cloud Computing*
- Fall 2016 & 2017      **Teaching Assistant**, Histology, MSU  
*Half-time recitation appointment*
- 2017 - present      **Genetics Officer**  
*Forum and career workshop coordinator*
- Summer 2016 & 2017      **Instructor**, Evolution, MSU  
*Develop and teach entirely online course through D2L*

- 2014 - present    **Education Staff**, [Potter Park Zoo](#), Lansing , Michigan  
*Organize and manage individual educational special events such as birthdays and overnights*
- 2008 – present    **Docent**, [Potter Park Zoo](#), Lansing , Michigan  
*Teach the scientific method & introduce research methods for the “BIG Zoo Lesson”. Use observation of animal behavior to teach children core science principles. Train animals and animal handlers for outreach*
- 2015 – present    **Software Carpentry Instructor**, [Notre Dame](#), [U of M](#)
- 2015 – present    **Data Carpentry Instructor**, [James Madison](#), [MSU](#), [MSU](#)
- Spring 2016 & 2017    **Lab Instructor**, Cells and Development, MSU  
*Teach cell culture and experimental design*
- Aug. 2012, 2013, 2014, 2015 & 2016    **Instructor**, [Next-Gen Sequence Analysis Workshop](#)  
*Teach a wide variety of computing topics including basic unix, bioinformatics and cloud computing*
- Summer 2016    **Instructor**, Fundamental Genetics, MSU  
*Traditional on-campus course in basic genetics*
- 2010, 2015, & 2016    **Presenter**, [Grandparents University](#), [MSU](#)  
*Science of Smells and Tastes*
- Feb 2016    **Instructor**, Introduction to LaTeX, [DIB Intermediate Bioinformatics Training](#)  
*Develop and teach LaTeX on Overleaf, for beginners*
- Jan 2016    **Instructor**, [RNAseq Workshop](#), ICER, MSU  
*Teach single workflow to novices over two days*
- Fall 2015 - Spring 2016    [NGS Continuation course](#)  
*Monthly evening session to teach practical computing to biologists*
- Fall 2015    **Teaching Assistant**, Genetics, MSU  
*Half-time recitation appointment*
- 2013 – May 2015    **Kellogg Biological Station GK-12 Fellow**  
*Act as a ‘visiting scientist’ in local schools helping to both teach and improve upon the science curriculum for elementary, middle and high school classrooms*
- 2013 - 2015    **Poster Judge**  
*University Undergraduate Research and Arts Forum, MSU*
- Sept. 2013    **Teaching Assistant**, [Software Carpentry](#) short course  
*Teach a wide variety of computing topics including basic unix, programing and data management*

## Publications

**Charbonneau, A.**, et al. (2017) Weed evolution: Genetic differentiation among wild, weedy, and crop radish. In Review

[LaTeX tutorial](#) presented for [DIB Intermediate Bioinformatics Training](#)

Publicly available lessons for GK-12 Bioenergy Sustainability Project [[2013](#), [2013](#), [2014](#), [2015](#)]

Publicly available lessons for Next-Gen Sequencing Workshop [[2012](#), [2013](#), [2014](#), [2015](#), [2016](#)]

Invited blog post, [BEACON](#) Researchers at Work, June 2014

Schillmiller, A., **Charbonneau, A.**, Last, R. (2012) Identification of a BAHD acetyltransferase that produces protective acyl sugars in tomato trichomes. [PNAS](#), 40, 16377-16382.

Schillmiller, A., Shi, F., Kim, J., **Charbonneau, A.**, Holmes, D., Jones, A., and Last, R. (2010) Mass spectrometry screening reveals widespread diversity in trichome specialized metabolites of tomato chromosomal substitution lines. [Plant Journal](#), 62, 391-403.

Schillmiller, A., Schauvinhold, I., Larson, M., Xu, R., **Charbonneau, A.**, Schmidt, A., Wilkerson, C., Last, R., and Pichersky, E. (2009) Monoterpenes in the glandular trichomes of tomato are synthesized from a neryl diphosphate precursor rather than geranyl diphosphate. [PNAS](#), 26, 10865–10870.

## Presentations

Midwest PopGen Conference, 2017	Talk: <i>Weed evolution: Genetic differentiation among wild, weedy, and crop radish</i>
Evolution Conference, 2014	Talk: <i>Evolution of Weed phenotypes in Radish</i>
BEACON Congress, 2013	Talk: <i>The Evolution of Weediness</i>
Ecological Genomics Symposium, 2012	Poster: <i>Evolution of weedy and crop phenotypes in radish</i>
BEACON Congress, 2012	Poster: <i>Evolution of crops and weeds: Loss of over-wintering phenotypes in wild radish</i>

## Attended Workshops and Symposia

Feb 2016	<a href="#">DIB Intermediate Bioinformatics Training</a> , Bodega Bay, CA
March 2015	<a href="#">Data Carpentry</a> Genomics and Assessment Hackathon <i>Helped to create the lesson content for the Genomics workshop</i>
Jan. 2015	<a href="#">Software Carpentry</a> Instructors Workshop
July 2013	18th <a href="#">Summer Institute in Statistical Genetics</a> Modules taken: <i>Quantitative Genetics, Mixed Models in Quantitative Genetics, Coalescent Theory</i>

May 2012      [Software Carpentry](#)  
*Scientific computing and software design*

## Awards

2013 – 2015      **Fellow** – Kellogg Biological Station GK-12  
*Partner with rural school teachers to help improve science lessons and learn teaching skills, two full years of financial support*

2013      **Honorable Mention** – National Science Foundation Graduate Research Fellowship Program

2011 – 2012      **Excellence in BioMolecular Science Fellowship** – College of Natural Sciences, MSU  
*One year of full financial support*

2011      **‘Good Egg Award’** – [Potter Park Zoo](#), Lansing Michigan  
*Docent of the year award for more than 400 hours of service in 2011*

**References available upon request**